

AMENDMENTS TO THE CLAIMS

This Listing of Claims will replace all prior versions and listings of claims in this application.

Please cancel claims 8 and 9 without prejudice or disclaimer.

Listing of Claims:

1. (Currently Amended) A method of purifying reduced coenzyme Q₁₀ which comprises washing crystals and/or oil of reduced coenzyme Q₁₀ with a water-soluble organic solvent or a mixed solvent composed of a water-soluble organic solvent and water to thereby remove a water-soluble impurity from the crystals and/or oil of reduced coenzyme Q₁₀,

wherein the water-soluble impurity is a reducing agent used for converting oxidized coenzyme Q₁₀ into reduced coenzyme Q₁₀ and/or an impurity derived from the reducing agent, the reducing agent being selected from the group consisting of hyposulfurous acid, hyposulfurous acid salts, ascorbic acids, esters of ascorbic acids and salts of ascorbic acids, and the ascorbic acids being selected from the group consisting of ascorbic acid, rhamno-ascorbic acid, arabo-ascorbic acid, gluco-ascorbic acid, fuco-ascorbic acid, glucohepto-ascorbic acid, xylo-ascorbic acid, galacto-ascorbic acid, gulo-ascorbic acid, allo-ascorbic acid, erythro-ascorbic acid and 6-desoxyascorbic acid.

2. (Original) The method of purifying reduced coenzyme Q₁₀ according to Claim 1, wherein the washing of the crystals and/or oil of reduced coenzyme Q₁₀ is carried out in a state of dispersion of the crystals and/or oil of reduced coenzyme Q₁₀ in the water-soluble organic solvent or the mixed solvent composed of the water-soluble organic solvent and water.

3. (Original) The method of purifying reduced coenzyme Q₁₀ according to Claim 2,

wherein the dispersion is caused in a state of forced flowing.

4. (Previously Presented) The method of purifying reduced coenzyme Q₁₀ according to Claim 1,
wherein the water-soluble organic solvent comprises at least one species selected from among alcohols, ketones, ethers, and nitriles.

5. (Original) The method of purifying reduced coenzyme Q₁₀ according to Claim 4,
wherein the water-soluble organic solvent is ethanol.

6. (Previously Presented) The method of purifying reduced coenzyme Q₁₀ according to Claim 1,
wherein the washing is carried out with a mixed solvent composed of an organic solvent and water.

7. (Original) The method of purifying reduced coenzyme Q₁₀ according to Claim 6,
wherein the washing is carried out with a mixed solvent having a water-soluble organic solvent content of not less than 5 w/w%.

8. (Cancelled)

9. (Cancelled)

10. (Currently Amended) The method of purifying reduced coenzyme Q₁₀ according to Claim 1 8,
wherein the reducing agent ~~and/or the impurity derived from a reducing agent are/is ascorbic acid or a related compound thereof and/or an impurity derived from ascorbic acid or a related compound thereof~~ is selected from the group consisting of ascorbic acids, esters of ascorbic acids, salts of ascorbic acids, and the ascorbic acids being selected from the group consisting of ascorbic acid, rhamno-ascorbic acid, arabo-ascorbic acid, gluco-ascorbic acid, fuco-ascorbic acid, glucohepto-ascorbic acid, xylo-ascorbic acid, galacto-ascorbic acid, gulo-ascorbic acid, allo-ascorbic acid, erythro-ascorbic acid and 6-desoxyascorbic acid.

11. (Original) The method of purifying reduced coenzyme Q₁₀ according to Claim 10, wherein the impurity derived from ascorbic acid or a related compound thereof is oxalic acid.

12. (Previously Presented) The method of purifying reduced coenzyme Q₁₀ according to Claim 4, wherein the concentration of reduced coenzyme Q₁₀ during washing is not higher than 30 w/w% as expressed in terms of the weight of reduced coenzyme Q₁₀ relative to the weight of the solvent at the time of completion of the washing.

13. (Previously Presented) The method of purifying reduced coenzyme Q₁₀ according to Claim 1, wherein reduced coenzyme Q₁₀ occurs as a form of crystals.

14. (Original) The method of purifying reduced coenzyme Q₁₀ according to Claim 13, wherein the washing temperature is not higher than 50°C.

15. (Previously Presented) The method of purifying reduced coenzyme Q₁₀ according to Claim 1, wherein reduced coenzyme Q₁₀ occurs as a form of oil and the washing temperature is not lower than the melting temperature of reduced coenzyme Q₁₀.

16. (Original) The method of purifying reduced coenzyme Q₁₀ according to Claim 15, wherein the washing temperature is not lower than 40°C.

17. (Previously Presented) The method of purifying reduced coenzyme Q₁₀ according to Claim 15, wherein crystals of reduced coenzyme Q₁₀ is recovered by cooling the solution obtainable after impurity removal from the oil of reduced coenzyme Q₁₀.

18. (Previously Presented) The method of purifying reduced coenzyme Q₁₀ according to Claim 15, wherein crystals of reduced coenzyme Q₁₀ is recovered by contacting seed crystals to oil of reduced coenzyme Q₁₀ obtainable after impurity removal from said oil.

19. (Previously Presented) The method of purifying reduced coenzyme Q₁₀ according to Claim 1,
wherein reduced coenzyme Q₁₀ is purified in a deoxygenated atmosphere.

20. (Currently Amended) A process of purifying reduced coenzyme Q₁₀ comprising the steps
of:

washing one or more of crystals of reduced coenzyme Q₁₀ and oil of reduced Q₁₀ with a water-soluble organic solvent or a mixed solvent composed of a water-soluble organic solvent and water;

removing a water-soluble impurity from the crystals and/or the oil into the water-soluble organic solvent or the mixed solvent composed of a water-soluble organic solvent and water; and
completing the purifying process without using a chromatographic purification step,

wherein the water-soluble impurity is a reducing agent used for converting oxidized coenzyme Q₁₀ into reduced coenzyme Q₁₀ and/or an impurity derived from the reducing agent, the reducing agent being selected from the group consisting of hyposulfurous acid, hyposulfurous acid salts, ascorbic acids, esters of ascorbic acids and salts of ascorbic acids, and the ascorbic acids being selected from the group consisting of ascorbic acid, rhamno-ascorbic acid, arabo-ascorbic acid, gluco-ascorbic acid, fuco-ascorbic acid, glucohepto-ascorbic acid, xylo-ascorbic acid, galacto-ascorbic acid, gulo-ascorbic acid, allo-ascorbic acid, erythro-ascorbic acid and 6-desoxyascorbic acid.

21. (New) The method of purifying reduced coenzyme Q₁₀ according to Claim 1,
wherein a conversion of oxidized coenzyme Q₁₀ into reduced coenzyme Q₁₀ is carried out using an organic solvent highly miscible with water.